From: "Hall, Steven G." <SGHall@ene.com>
To: <Liverman.Earl@epamail.epa.gov>
Sent: Thursday, August 02, 2012 7:11 AM
Subject: RE: POLREP Narrative

Earl –

Earl, here are some of my preliminary thoughts:

Are we really sure that we are seeing more product than anticipated? Maybe it's better to characterize it as "we are encountering a significant amount of product in the vicinity of the containment barrier and recovery trenches." I don't remember ever predicting or estimating how much free product we might encounter along the river bank, unless you are specifically talking about the length of the bank (i.e., only 200-300 feet or so centered on the property line).

About the length/location of product along the river bank: that still seems like a reasonable assumption before the removal, based on the pattern of seeps and sheen observed in the river.

It seems to me that the what we are seeing indicates that the containment barrier was actually doing a pretty good job, *so far*, of preventing most of the free product from reaching the river. Also, maybe the failures at the seep locations (i.e., the center 300 feet) would begin to increase up and down the river bank over time. Of course, the containment barrier would not have lasted forever, and if the product recovery wasn't effective (see below), then this removal action would have to happen sooner or later before the failure rate and product discharge to the river increased.

About product recovery: I'll look back through the previous reports for more information, but if I remember correctly, there wasn't a lot of details about how the system was designed and operated. We know that the first system was a pump and treat system, but they only recovered about 1200 gallons of product. (By the way, I don't believe that there has ever been an estimate on the amount of product that was released). It's possible that the product was thick (i.e., viscous) enough that most of it couldn't be recovered. Also, for a pump and treat system like that, you need to have a large enough cone of depression over a wide enough area for the free product to be captured. Maybe the amount of GW pumping that they did was insufficient to capture a wider area of free product after they captured the area immediately around the wells.

For the 2000 system with the containment barrier, I'm really unclear on how the product recovery of it was supposed to work. I'll go back and review the documents, but as I recall I don't believe that there was a lot of details. It's possible that there are site-specific factors as to why they could not recover more product (subsurface geology, the location of the recovery wells). But I also suspect that a big factor is operations. How much was Potlatch actively trying to recover product? With the second system, I don't believe they were pumping GW, so there would not be a cone of depression, and if they weren't constantly recovering product, maybe that explains why there is so much there.

Anyway, let me know what you think about this, and I'll check in later after I review the background reports.

Thanks,
Steve

From: Earl Liverman [mailto:Liverman.Earl@epamail.epa.gov]

Sent: Wednesday, August 01, 2012 10:38 AM
To: Hall, Steven G.
Subject: POLREP Narrative

As discussed yesterday, I would like to develop a narrative that attempts to explain why we are finding more than anticipated free product against the river bank. The second paragraph below is my attempt at explaining this observation. I believe it needs something more "scientific," but I'm not sure what to say. For example, is capillary action a component? What I want to avoid is overemphasizing the partial success of the 1995 and 2000 actions. In other words, while the actions worked to a lesser or greater extent, they also caused for the impounding of product such that it became increasing less mobile because it was entrained among the crushed rock and ineffective extraction/recovery wells (i.e., these features became sinks for the product), and evolved into a chronic source for release of product to the river perhaps in perpetuity.

At any rate, please improve on the narrative, and keep in mind it is something that will likely become part of the final removal report and may be somewhat controversial. Please provide no later than tomorrow. Thanks.

"Continued excavation of clean overburden from the Bentcik property and the Bentcik/IDL and Potlatch/IDL transition areas. Started excavation of the LNAPL plume from the Bentcik property and Bentcik/IDL and Bentcik/Potlatch transition areas. Based on field screening, from approximately 0 to 10 feet below ground surface the subsurface soil was considered not contaminated, and from 10 to 20 feet the subsurface soil was considered contaminated based on field screening.

Encountered greater than anticipated residual quantities of product in subsurface soil in proximity of the extraction trenches and recovery wells installed as part of the 1995 Free Product Recovery System (FPRS) and the impermeable vertical wall and collection wells installed as part of the 2000 Corrective Action (CA). The free-phase product appears to be retained partially by the 1995 and 2000 actions.

Encountered varying sizes and lengths of demolition debris, including concrete, metal, pipe, and asbestos-cement pipe buried in or in close proximity to the extraction trenches installed as part of the 1995 FPRS and 2000 CA."

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